01960952   (THIS IS THE FULLTEXT)
Manufacturing: Key Word: Integration
(Manufacturers and their suppliers, distributors, and retailers use the
Internet to share real-time information about amount of product needed
and sold)
Information Week, p 223+
September 22, 1997

ABSTRACT:
The use of information technology by manufactuers and their suppliers,
distributors and retailers is discussed in the full-text article. The
companies are ranked by the size of their 1997 information technology
budgets.

TEXT:
By Tom Stein

Third-party apps for supply chain and sales enhance ERP systems
FOR TOP manufacturing companies, enterprise resource planning systems play
a critical role in improving outdated infrastructures, gaining tighter
control .over internal operations, and driving down costs. Manufacturers
are also turning their attention beyond factory walls. By implementing
third-party applications, such as supply-chain and sales-force automation
systems, they aim to better connect with customers and **business   partners**
, and to further boost the bottom line.

Today, the big trend among manufacturers is the "expansion of their ERP
systems by integrating with supply-chain and front-office software," says
Harry Tse, research director with the Yankee Group, a consulting firm in
Boston. "Companies are looking to these applications to streamline their
activities."

photo omitted

One example is Steelcase Inc., a $3 billion maker of office furniture in
Grand Rapids, Mich. For manufacturing operations, Steelcase made a $15
million investment in an enterprise system from German
enterprise-applications vendor SAP, which it began implementing three years
ago. Before that, Steelcase had relied on its own customized applications.
"This customization route was taking too long and costing too much," says
Steelcase CIO Mark Greiner. "We knew we had to look at an integrated ERP
system."

But while SAP's R/3 system addresses day-to-day order fulfillment and the
processes required to build products, until recently, it didn't tackle such
things as supply-chain management and customer service. That led Steelcase
to build its own applications for managing customer relationships, says
Greiner. "We think we have always been able to make higher-quality
furniture than any other manufacturer," he says. "Now we realize it's not
just how well we make the stuff, but how we sell it."

A Word Wide **Web** application lets Steel-case's sales associates and
distributors connect with one another and share critical information. "We
have just posted our product playbook in a secure online environment,"
explains Greiner. "Our sales force and dealers can look at the play-book
and exchange information about our new products over the Internet."

Owens Corning Inc. is another manufacturing company that is integrating
multiple systems and expanding its ERP system's capabilities. Known
primarily as the maker of pink fiberglass insulation, the Toledo, Ohio,
company has added a host of new products to become a complete supplier of
home building materials.

As part of the manufacturing makeover, Owens Corning has made about 16 acquisitions in the past two years. But with each acquisition came old legacy IT systems and disparate applications.

That led Owens Corning to standardize on SAP's R/3 suite. "We did not have an infrastructure that would allow us to operate as a global company and one that would let our customers look at us as a single company," explains Mike Radcliff, CIO of Owens Corning. "Since Owens sells a variety of products, customers would have to contact different departments to get different things."

But now, thanks to SAP's new ATP (available to promise) module, Owens has a single point of contact for all product lines. "With our old system, we didn't know what inventory we had in stock," says Radcliff. "We would have to check around and get back to the customer. With ATP, we can see what inventory is available, when it will be produced, and who is the lowest-cost carrier. We can commit to the customer before we hang up the phone. That used to take multiple steps; now it takes one phone call."

Owens Corning, with nearly $4 billion in revenue, began its SAP implementation two years ago and now has some 40 manufacturing sites live on the software. The company's overall budget for the reengineering project is about $100 million--a figure that includes software, hardware, development, and training. But thanks to productivity gains engendered by the new system, Owens expects to save approximately $50 million annually, or 1% of total sales.

The biggest challenge has been "assimilating the magnitude of the changes in a short time," elaborates Radcliff. About 10,000 people within Owens will be involved in the reengineering effort, and, he says, many are using new information technology. "Just about everybody's role in the organization has changed, and that demands that people learn new skills. But ultimately, the change in our company has brought better ways of working and has introduced new relationships with our customers."

Now that the company uses SAP as its backbone, Owens Corning is also looking for applications that can be readily plugged into the R/3 system, such as supply-chain functionality from Numetrix Ltd. and Manugistics Inc. "We look for technology suppliers that we believe will have complementary relationships with each other," says Radcliff.

Steelcase also plans to integrate third-party software with R/3 to fill other gaps in the SAP system. For instance, "our sales-force apps need to be linked to the SAP mother ship," says Greiner. Steelcase is investigating applications from Oracle. Now, the company uses customized tools that let salespeople **display** products on their notebooks in a 3-D environment. "This helps customers visualize the products and kick the tires," explains Greiner.

photo omitted

Another area in which Steelcase needs help is the supply chain. "We found SAP is weak with the scheduling of plant operations," says Greiner. "SAP focuses on make-to-stock, but we are make-to-order." To provide this functionality, Steelcase is working with supply-chain vendor i2 Technologies Inc. of Irving, Texas, whose technology will integrate with the R/3 suite.

"We ask SAP to find the applications they are missing and integrate them into their own system," says Greiner. "If something breaks, we want to be able to deal directly with SAP." Greiner hopes that SAP will establish a similar relationship with Manugistics, in Rockville, Md., for such functions as transportation management and load scheduling.
All told, Steelcase expects to spend $60 million to $90 million on new systems over the next three to five years. "In the past, we were doing things inefficiently," says Greiner. "We believe we can achieve an $80 million reduction in operating expenses just by getting rid of redundant processes and cleaning up our data."

Steelcase also developed a **Web** site that's generating about 80,000 hits per week, says Greiner. Customers can learn about Steelcase products by browsing an online catalog. Soon they will also be able to check the status of their orders, among other functions. "This is the way customers want to talk to you and the way you will want to market to them," says Greiner. "The **Web** browser has become the universal language for connecting with the world."

Every **Component** Considered

Cargill Corp., a $56 billion manufacturer of everything from cornmeal to steel, is another example of a company using information technology to prepare itself for the 21st century. "Over a period of three years, we conducted a rationalization study where we considered every **component** ," says Lloyd Taylor, corporate VP of IT at Cargill, in Minneapolis. "We selected about 20 different packaged applications that would fit all our plants."

The company had no choice but to update its IT infrastructure. "The computing model here was not functionally robust, and the technology was from the 1970s," Taylor admits. "Now we are playing catch-up." One example: The company had 16 E-mail systems, which often made it impossible to send certain Microsoft Word documents and interoffice memos electronically. "We ripped everything out, and now we have a common set of desktop applications, including cc:Mail and Lotus Notes," says Taylor.

photo omitted

At the high end of its setup, Cargill is using Maximo from Project Software Development Inc. in Cambridge, Mass., for plant maintenance. The company also runs supply-chain applications from Numetrix, in Toronto, and from Manugistics. At the heart of Cargill's new IT infrastructure is a manufacturing, logistics, and inventory management package from QAD Inc. in Carpinteria, Calif.

The challenge for Cargill is integrating these disparate systems. The company has turned to another vendor, Hewlett-Packard, for help. "They have 'switchware,' or what we call a common message transfer service, that lets you move data from one app to another and from one database to another fairly seamlessly," Taylor says.

Manufacturing companies are discovering that the price of modernizing their systems is high. But the price of not modernizing may be higher, while the rewards, it seems, are worth every penny.

TECHNOLOGY CLOSE-UP
 Legend for Chart:
A - RANK
B - COMPANY
C - IT BUDGET (1997)
D - IT BUDGET (1996)
E - IT EMPLOYEES
F - YEAR 2000 READY
G - % OUTSOURCING
H - % INTERNET
I - SELLING IN **WEB**
J - PROCUREMENT ON **WEB**

A	B	C	D	E	F	G	H	I	J
4	General Motors Corp.	$4,000,000,000	$4,000,000,000	1,500	--	--	--	Y	N
27	Ingersoll Rand Co.	--	--	700	--	10%	2%-3%	N	Y
33	Cargill Inc.	$277,000,000	$263,000,000	<2,000	70%				

		15%	<5%	Y	Y
46	Parker Hannifin Corp.				
		$82,000,000	$76,000,000	<1,000	80%
		5%	--	N	Y
56	Corning Inc.				
		$185,000,000	$34,000,000	500	50%
		25%	10%	N	N
69	Science Applications Int. Corp.				
		$30,000,000	$29,000,000	500	70%
		10%	10%	Y	Y
76	Deere & Co.				
		$300,000,000	$280,000,000	1,500	90%
		5%	3%	N	N
90	Chrysler Corp.				
		$400,000,000 [*]	$350,000,000 [*]	950	70%
		10%-20%	1%-5%	N	--
95	PPG Industries Inc.				
		$85,000,000	$80,000,000	525	20%
		15%	2%	N	Y
100	Stone Container Corp.				
		$33,000,000	$35,000,000	250	45%
		15%	1%	N	N
124	Caterpillar Inc.				
		$430,000,000	$395,000,000	2,600	60%-75%
		10%	11%	N	N
125	Genuine Parts Co.				
		$33,000,000	$35,000,000	500	50%
		10%	1%	N	Y
127	Cummins Engine Co. Inc.				
		--	--	500	75%
		20%	10%	N	N
141	Eastman Kodak Co.				
		$500,000,000	$500,000,000	2,000	--
		--	--	Y	N
148	Tyco International Ltd.				
		$45,000,000	$35,000,000	500	20%
		5%	1%	Y	N
153	Aeroquip-Vickers Inc.				
		$38,600,000,	$32,400,000	235	60%
		5%	1%	N	N
158	3M Corp.				
		$427,000,000 [*]	--	2,700	10%
		10%	10%	Y	Y
171	General Signal Corp.				
		$45,000,000	$30,000,000	200	60%
		5%	2%	Y	N
187	Snap-On Inc.				
		$29,500,000	$27,000,000	132	90%
		15%	5%	N	N
187	Snap-On Inc.				
		$29,500,000	$27,000,000	132	90%
		15%	5%	N	N
201	Echlin Inc.				
		$31,000,000 [*]	$41,000,000	<500	76%
		15%	1%	Y	Y
203	Avery Dennison Corp.				
		$68,000,000	$65,000,000	450	80%
		15%	5%	Y	Y
207	Owens Corning Inc.				
		$89,000,000	$84,000,000	180	>95%
		55%	<1%	Y	Y
214	Dresser Industries Inc.				
		$60,000,000	$57,000,000	432	80%
		7%	1%	N	Y
219	Bermis Co. Inc.				
		$29,000,000	$24,000,000	125	70%
		30%	5%	N	Y
248	Timken Co.				
		$50,000,000	$49,100,000	250	65%

	14%	1%	N	N
249	Harsco Corp.			
	$7,500,000	$10,000,000	80	90%
	10%	30%	Y	Y
250	GATX Corp.			
	$69,000,000	$56,000,000	257	60%
	10%	<1%	N	N
261	Gold Kist Inc.			
	$11,000,000[*]	$6,000,000	55	50%
	5%	--	N	N
306	Amsted Industries Inc.			
	$8,900,000	$8,300,000	81	30%
	4%	<1%	N	Y
317	Menasha Corp.			
	$24,000,000	$21,000,000	120	50%
	40%	1%	N	Y
318	America Standard Cos. Inc.			
	$80,000,000	$60,000,000	--	50%
	25%	--	--	--
326	Black & Decker Corp.			
	$83,500,000[*]	$71,000,000[*]	400	25%
	3%	1%	N	N
337	Steelcase Inc.			
	$65,000,000	$55,000,000	280	30%
	10%-15%	5%	N	N
343	Crown Cork & Seal Co. Inc.			
	$20,000,000	$15,000,000	250	50%
	5%	2%	N	N
355	Burlington Industries Inc.			
	$39,300,000[*]	$37,600,000[*]	400	50%-60%
	3%	0%	N	N
369	Magnatek Inc.			
	$20,000,000	$12,000,000	110	80%
	4%	<1%	N	N
376	Standard Register Co.			
	$35,000,000	$25,000,000	190	15%-20%
	0%	2%-5%	Y	N
378	Kaman Corp.			
	$25,000,000	$20,000,0000	--	90%
	0%	40%	N	Y
383	Day & Zimmerman Inc.			
	$15,000,000	$14,000,000	126	--%
	15%	15%	N	Y
399	Teradyne Inc.			
	$15,000,000	$15,000,000	150	90%
	20%	10%	N	N
402	Arvin Industries Inc.			
	$13,000,000	$12,000,000	60	25%
	5%	5%	N	N
413	Leggett & Platt Inc.			
	$18,000,000	$14,000,000	75	25%
	0%	0%	N	Y
435	York International Corp.			
	$25,400,000	$24,000,000	200	45%
	15%-20%	10%	Y	Y
455	Varian Associates Inc.			
	$18,100,000	$17,400,000	210	50%
	15%	5%	N	Y
459	United Stationers Inc.			
	$44,000,000	$38,000,000	175	60%
	1%	1%-3%	N	N
473	Herman Miller Inc.			
	--	$34,000,000	<200	10%
	1%	--	N	N
478	Sundstrand Corp.			
	--	--	190	50%
	5%	2%	Y	N
491	Duchoissois Industries Inc.			
	$4,900,000	$4,800,000	29	50%

	3%		3%		N	N
495	Printpack Inc.					
	$8,000,000		$8,000,000		50	75%
	6%		5%		N	N
500	Purina Mills Inc.					
	$8,000,000		$12,000,000		60	10%
	--		5%		Y	Y

* Company-provided estimates based on IT budget as a percentage of revenue. Year 2000 Ready is company-estimated percentage of software code that is year 2000 compliant. % Outsourcing is percentage of company's IT budget spent on outsourced projects. % Internet is percentage on online initiatives. Selling on **Web** : Company is selling products and services thorough its **Web** site (handling the actual transaction online and placing orders, but not necessarily payment). Procurement on **Web** : Company is procuring supplies or materials over the Internet. Industry companies not listed declined to participate in the informationWeek survey. Missing information was not provided by surveyed companies.

INDUSTRY SNAPSHOT

BUSINESS AND TECHNOLOGY TRENDS

* Third-party applications, such as supply-chain and sales-force-automation systems, allow manufacturers to better connect with customers and **business partners** .

* Manufacturers and their suppliers, distributors, and retailers use the Internet and other technologies, such as bar-code scanner data, to share real-time information about how much product they need to make and how much they have sold.

* Continued installation of enterprise resource planning (ERP) software allows companies to gain more control of internal operations and drive down factory costs.

* % REVENUE SPENT ON IT: 1.8%

* IT SPENDING PER EMPLOYEE: $4,541

* EMPLOYEES DEDICATED TO IT: 1.2%

* % IT BUDGET FOR ONLINE INITIATIVES: 5.7%

* % IT BUDGET FOR OUTSOURCING: 10.7%

* YEAR 2000-COMPLIANT CODE: 55%

* APPS ACCESSIBLE ONLINE: 10%

* COMPANIES THAT SELL ONLINE: 30%
* COMPANIES THAT PROCURE ONLINE: 42%

BASED ON 58% OF IW 500 MANUFACTURERS

DATA: INFORMATIONWEEK

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SPECIAL FEATURES: Table
INDUSTRY NAMES: Automotive; Industrial machinery; Paper products
PRODUCT NAMES: Furniture and fixtures (250000); Paper mills (262000); Manifold business forms (276000); Stone, clay, and glass products (320000); Industrial machinery and equipment (350000); Ball and roller bearings (356200); Electronic and other electric equipment (360000); Motor vehicles and equipment (371000); Measuring, analyzing, and controlling instruments and related products (380000); Manufacturing

industries, other (390000)
CONCEPT TERMS: All company; All market information; All product and
   service information; Applications; Capital expenditures; Labor relations;
   Trends
GEOGRAPHIC NAMES: North America (NOAX); United States (USA)
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